AMENDMENTS TO THE CLAIMS

Claims 1-34 (Cancelled)

35. (Currently Amended) A method of producing a substrate material of an aluminum/silicon carbide composite alloy by the sintering method, wherein the method comprises steps of:

mixing an aluminum powder and silicon carbide powder to form an aluminum/silicon carbide starting powder mixed homogeneously;

compacting the aluminum/silicon carbide starting powder having a silicon carbide content of from 10 to 70% by weight to form a compact; and

sintering the compact at a temperature of from 600°C to 900°C in an ~~non-oxidizing~~ atmosphere having an oxygen concentration of 200ppm or lower to thereby obtain an aluminum/silicon carbide composite alloy.

36. (Previously Presented) The method of producing a substrate material as claimed in claim 35, wherein the sintering step is conducted at the temperature within a range of from 600°C to 750°C.

37. (Original) The method of producing a substrate material as claimed in claim 35, wherein the sintering step is conducted in a nitrogen atmosphere having a nitrogen concentration of 99% by volume or higher.

38. (Cancelled)

39. (Cancelled)

40. (Original) A method of producing a substrate for mounting a semiconductor chip as claimed in claim 35, further comprising the step of repressing the aluminum/silicon carbide composite alloy obtained by sintering the aluminum/ silicon carbide starting powder, or repressing them and then heating in a non-oxidizing atmosphere so as to prevent from oxidizing aluminum.

41. (Previously Presented) A method of producing a substrate made of an aluminum/silicon carbide composite alloy by the sintering method, comprising the steps of:

mixing an aluminum powder and silicon carbide powder to form an aluminum/silicon carbide starting powder having a silicon carbide content of from 10 to 70% by weight;

compacting the aluminum/silicon carbide starting powder to form a compact;

sintering the compact at a temperature of 600°C or higher in a non-oxidizing atmosphere for aluminum to thereby obtain a pre-formed substrate made of an aluminum/silicon carbide composite alloy; and

forming a coating layer on a surface of the pre-formed substrate to thereby obtain the substrate.

42. (Original) The method of producing a substrate as claimed in claim 41, wherein the step of forming a coating layer is:

heating the substrate in an oxidizing atmosphere; or

exposing the substrate to a steam atmosphere.

43. (Original) The method of producing a substrate as claimed in claim 41, wherein the step of forming a coating layer comprises steps of:

forming a layer of a metal having a Young's modulus of 15,000 kg/mm^2 or lower on the substrate material;

polishing the metal layer;

and plating the polished metal layer with a t least one metal selected from nickel and gold.

44. (Original) The method of producing a substrate as claimed in claim 41, wherein the step of forming a coating layer comprises steps of:

forming a layer of a metal having a melting point of 600°C or lower on the substrate surface;

heating the metal layer to a temperature not higher than 600°C; and

plating the metal layer with at least one metal selected from nickel and gold.

45. (Original) The method of producing a substrate as claimed in claim 41, wherein the step of forming a coating layer comprises steps of:

forming a layer of at least one organic resin selected from an epoxy resin, a silicone resin, a polyimide resin, and the like each containing a metallic filler or not on the substrate surface.

46. (Original) The method of producing a substrate as claimed in claim 45, wherein the step of forming a coating layer further comprises steps of:
plating a metal layer made of at least one metal selected from nickel and gold on the layer of organic resin.

47. (Original) The method of producing a substrate as claimed in claim 46, wherein the forming step of a layer of a metal having a Young's modulus of 15,000 kg/mm2 or lower on the substrate is conducted by barrel plating.

48. (Original) The method of producing a substrate as claimed in claim 47, wherein the barrel plating is conducted in a container which contains metal spheres having a particle diameter of from 0.1 to 10 mm and having the same composition as the deposit to be formed.

49. (Original) The method of producing a substrate as claimed in claim 48, wherein the spheres contained in the container for use in barrel plating have a surface area which is at least two times that of the corresponding true spheres.

50. (New) A method of producing a substrate material of an aluminum/silicon carbide composite alloy by the sintering method, wherein the method comprises steps of:

mixing an aluminum powder and silicon carbide powder to form an aluminum/silicon carbide starting powder mixed homogeneously;

compacting the aluminum/silicon carbide starting powder having a silicon carbide content of from 10 to 70% by weight to form a compact; and

sintering the compact at a temperature of from 600°C to 900°C in an atmosphere having a dew point of -20C or lower to thereby obtain an aluminum/silicon carbide composite alloy.

51. (New) The method of producing a substrate material as claimed in claim 50, wherein the sintering step is conducted at the temperature within a range of from 600°C to 750°C.

52. (New) The method of producing a substrate material as claimed in claim 50, wherein the sintering step is conducted in a nitrogen atmosphere having a nitrogen concentration of 99% by volume or higher.

53. (New) A method of producing a substrate for mounting a semiconductor chip as claimed in claim 50, further comprising the step of repressing the aluminum/silicon carbide composite alloy obtained by sintering the aluminum/ silicon carbide starting powder, or repressing them and then heating in a non-oxidizing atmosphere so as to prevent from oxidizing aluminum.